

Date: Wed, 10 Aug 94 04:30:31 PDT
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V94 #220
To: Ham-Space

Ham-Space Digest Wed, 10 Aug 94 Volume 94 : Issue 220

Today's Topics:

 AMSAT ANS-218 BULLETINS
 ARLK031 Keplerian data
 ARLK032 Keplerian data
 ORBS\$217.WEATH.AMSAT
 STS-65 Commemorative TLI Burn
 Student Space Action Announces Home Page

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Sun, 7 Aug 1994 20:12:49 -0600
From: ihnp4.ucsd.edu!ucsnews!newshub.sdsu.edu!nic-nac.CSU.net!usc!
howland.reston.ans.net!spool.mu.edu!bloom-beacon.mit.edu!senator-
bedfellow.mit.edu!pschleck@network.ucsd.edu
Subject: AMSAT ANS-218 BULLETINS
To: ham-space@ucsd.edu

SB SAT @ AMSAT \$ANS-218.01
KO-25 KEPLERIAN ELEMENTS

HR AMSAT NEWS SERVICE BULLETIN 218.01 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 6, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-218.01

KO-25 NASA Keps Track The Wrong Satellite

For the past several weeks many amateurs have noted that the NASA keps for K025 have not produced accurate AOS and LOS times observes AMSAT-NA Orbital Data Manager Ray Hoad (WA5QGD). With the help of W5IU, K5EKH, and KG50A, numerous K0-25 passes have been observed in conjunction with other objects in the K0-25 launch group. The consensus of this study is that the object NASA tracks as Catalog #22828 may actually be K025.

In order to help remove this confusion, the keplerian elements for Catalog #22828 will be included (for the near future) in the weekly keplerian element set published on INTERNET. Please post any comments on the accuracy of the Cat. #22828 keps in tracking of K025 as messages addressed to WA5QGD on either K0-23 or K0-25 digital satellites. The NASA Orbital Information Group has been advised of the tracking problem with K025.

Note: The most accurate way to determine whether a transmitting satellite fits a set of keplerian elements is to observe the frequency of the satellite's transmission at the Time of Closest Approach (TCA). For low orbit birds, this corresponds to the time of maximum elevation given by most tracking programs. At this time there will be no doppler shift and the transmission frequency should match the published channel frequency (assuming no shift due to other causes). If a set of keps meets these requirements, it is a good match for the satellite. This method will give more consistent results than the AOS/LOS method.

[The AMSAT News Service (ANS) wishes to thank Ray Hoad (WA5QGD) for this bulletin item.]

/EX

SB SAT @ AMSAT \$ANS-218.02

SSTV ON OSCAR 13

HR AMSAT NEWS SERVICE BULLETIN 218.02 FROM AMSAT HQ

SILVER SPRING, MD AUGUST 6, 1994

TO ALL RADIO AMATEURS BT

BID: \$ANS-218.02

SSTV ON OSCAR 13

Slow scanners are invited to join the SSTV sessions on AMSAT-OSCAR-13 (AO-13). The frequency is 145.955 MHz. The Net meets at 45 minutes before Mode S, and on Mode B following Mode S on Saturdays and Sundays. Join these sessions or contact wb6llo@amsat.org for other skeds and he will coordinate your efforts.

DATE	TIME
13-AUG-1994	15:50UTC and 17:55 UTC
14-AUG-1994	14:43UTC and 16:48 UTC

Please disseminate widely: clubs, local nets, etc.

/EX

SB SAT @ AMSAT \$ANS-218.03
WEEKLY OSCAR STATUS REPORTS

HR AMSAT NEWS SERVICE BULLETIN 218.03 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 6, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-218.03

Weekly OSCAR Status Reports: 06-AUG-94

A0-13: Current Transponder Operating Schedule:

M QST *** A0-13 TRANSPONDER SCHEDULE *** 1994 Jul 11 - Sep 12

Mode-B : MA 0 to MA 90 | Omnis : MA 230 to MA 30
Mode-BS : MA 90 to MA 120 |
Mode-S : MA 120 to MA 122 |<- S beacon only
Mode-S : MA 122 to MA 145 |<- S transponder; B trsp. is OFF
Mode-S : MA 145 to MA 150 |<- S beacon only
Mode-BS : MA 150 to MA 180 | Blon/Blat 180/0
Mode-B : MA 180 to MA 256 | Move to attitude 230/0, Sep 12

=====

N QST *** A0-13 TRANSPONDER SCHEDULE *** 1994 Sep 12 - Dec 19
Mode-B : MA 30 to MA 150 |<- OFF Oct 22 - Nov 07 for eclipses
Mode-B : MA 150 to MA 190 | max duration 2h 12m
Mode-BS : MA 190 to MA 218 |
Mode-S : MA 218 to MA 220 |<- S beacon only
Mode-S : MA 220 to MA 230 |<- S transponder; B trsp. is OFF
Mode-B : MA 230 to MA 30 | Alon/Alat 230/0
Omnis : MA 250 to MA 140 | Move to attitude 180/0, Dec 19

The battery charge state is of paramount importance during the eclipse seasons. As always the command team may have to have to make temporary changes to the published schedule. In that case we will try to minimize the inconvenience, setting Mode-B OFF from MA 230-256 in the first instance.

=====

[G3RUH/DB20S/VK5AGR]

D0-17: DOVE is running a new set of software that tests the digital-to-analog converter (DAC) and other hardware and software capabilities. It plays digitally generated tones through the DAC and exercises software that implements two way communications between the on-board processors. [WD0E for the DOVE Team]

RS-10: RS-10 has been working very well. Lots of activity with 2 stations worked /MM I6KYL/MM EL27 and N1KTM/MM EL67. Also on the 28-JUL-94, WC9C heard the station KC6VRK who was on A0-13 as RS-10 pass underneath right

after AO-13 went through its perigee; his signal was very strong on the 10M downlink. The CW Robot is back up and working just fine. Also, WA6ARA reports that RS-10 has been sending down excellent signals at his QTH with lots of stations using CW. [WC9C & WA6ARA]

AO-10: After last week's glowing report about AO-10 sending down excellent signals, ZL2TP0 reports that AO-10 has started to "FM" very badly. Up until last week it has been operating quite well and there have been a number of stations operating. Please note that when AO-10 is "FMing," please refrain from using it. [ZL2TP0]

KO-25: WH6I reports that KO-25 was in some sort of "loader-mode" earlier in the week. Today, however, the BBS seemed to be working again, but he was unable to send any commands to it. WH6I has not seen anything to indicate what is going on. [WH6I]

LO-19: LUSAT-OSCAR-19 (LO-19) is still not running its BBS. [WH6I]

IO-27: WH6I still has not heard anything from ITAMSAT. [WH6I]

AO-16: Still going strong and very doing well. There is some gateway traffic on AO-16 but not enough to present any problem to other users and the file lifetime on the bird is still quite long. [WH6I]

KO-23: KO-23 is going strong and doing well. [WH6I]

The AMSAT NEWS Service (ANS) is looking for volunteers to contribute weekly OSCAR status reports. If you have a favorite OSCAR which you work on a regular basis and would like to contribute to this bulletin, please send your observations to WD0HHU at his CompuServe address of 70524,2272, on INTERNET at wd0hhu@amsat.org, or to his local packet BBS in the Denver, CO area, WD0HHU @ N0QCU. Also, if you find that the current set of orbital elements are not generating the correct AOS/LOS times at your QTH, PLEASE INCLUDE THAT INFORMATION AS WELL. The information you provide will be of value to all OSCAR enthusiasts.

/EX

Date: Mon, 8 Aug 1994 06:10:10 MDT
From: ihnp4.ucsd.edu!ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!agate!
library.ucla.edu!psgrain!nntp.cs.ubc.ca!alberta!ve6mgs!usenet@network.ucsd.edu
Subject: ARLK031 Keplerian data
To: ham-space@ucsd.edu

SB KEP @ ARL \$ARLK031
ARLK031 Keplerian data

ZCZC SK98
QST de W1AW
Keplerian Bulletin 31 ARLK031
>From ARRL Headquarters
Newington, CT August 6, 1994
To all radio amateurs

SB KEP ARL ARLK031
ARLK031 Keplerian data

Thanks to NASA, AMSAT and N3FKV for the following Keplerian data.

Decode 2-line elsets with the following key:

1 AAAAAU 00 0 0 BBBB.BBBBBBBB .CCCCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF GGGGGG HHH.HHHH III.IIII JJ.JJJJJJJKKKKKZ
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM
STS-68

1 99968U 94230.76050690 .00169786 00000-0 85389-4 0 10
2 99968 57.0052 28.8010 0009698 270.9951 89.0013 16.20039161 62
AO-10

1 14129U 83058B 94195.81899517 -.00000239 00000-0 10000-3 0 2900
2 14129 27.0497 317.9184 6025942 194.3808 135.3303 2.05882029 55387
RS-10/11

1 18129U 87054A 94205.76394677 .00000021 00000-0 61233-5 0 9290
2 18129 82.9269 301.0678 0010302 284.6472 75.3539 13.72339428355066
UO-11

1 14781U 84021B 94206.57201705 .00000126 00000-0 29120-4 0 7113
2 14781 97.7853 219.4981 0012287 142.1150 218.0921 14.69232874555947
RS-12/13

1 21089U 91007A 94205.88513475 .00000042 00000-0 28212-4 0 7115
2 21089 82.9215 343.4852 0030108 6.5069 353.6469 13.74044138173828
AO-13

1 19216U 88051B 94205.91938835 .00000274 00000-0 10000-4 0 9355
2 19216 57.7565 240.1864 7222231 346.4624 1.6687 2.09718427 15306
UO-14

1 20437U 90005B 94206.22284695 -.00000006 00000-0 14630-4 0 131
2 20437 98.5894 290.4825 0012008 78.9012 281.3516 14.29850235235026
AO-16

1 20439U 90005D 94206.20702088 .00000003 00000-0 18130-4 0 8113
2 20439 98.5977 291.7399 0012239 79.4923 280.7641 14.29904338235030
DO-17

1 20440U 90005E 94206.22761656 -.00000004 00000-0 15240-4 0 8125
2 20440 98.5991 292.0970 0012389 78.8466 281.4111 14.30043974235052
WO-18

1 20441U 90005F 94205.78381851 -.00000004 00000-0 15267-4 0 8142
2 20441 98.5990 291.6570 0012956 80.7533 279.5114 14.30018047234996

L0-19

1 20442U 90005G 94206.24921416 .000000001 00000-0 17383-4 0 8105
2 20442 98.5996 292.3827 0013298 79.1581 281.1094 14.30114763235079

F0-20

1 20480U 90013C 94206.26040988 -.000000051 00000-0 -35431-4 0 7081
2 20480 99.0420 350.8957 0539824 253.2264 100.8961 12.83226193209016

A0-21

1 21087U 91006A 94205.15751765 .000000094 00000-0 82657-4 0 4924
2 21087 82.9457 115.3614 0035527 343.6761 16.3239 13.74542534174664

U0-22

1 21575U 91050B 94205.73789110 .000000018 00000-0 20773-4 0 5157
2 21575 98.4330 279.4738 0007454 171.9232 188.2073 14.36924859158479

K0-23

1 22077U 92052B 94206.41547975 -.000000037 00000-0 10000-3 0 4102
2 22077 66.0810 199.9404 0015234 277.3412 82.5876 12.86286814 91707

K0-25

1 22830U 93061H 94206.20302620 -.000000021 00000-0 88397-5 0 3134
2 22830 98.5527 278.5145 0012526 66.4100 293.8394 14.28060612 43126

I0-26

1 22826U 93061D 94206.20110340 -.000000005 00000-0 15806-4 0 3085
2 22826 98.6520 281.6684 0010136 97.7120 262.5225 14.27734369 43113

A0-27

1 22825U 93061C 94206.22287297 -.000000014 00000-0 12265-4 0 3088
2 22825 98.6518 281.6465 0009366 94.4271 265.7975 14.27629859 43114

P0-28

1 22829U 93061G 94206.20886141 .000000012 00000-0 22305-4 0 3019
2 22829 98.6465 281.7033 0011077 84.7659 275.4787 14.28034406 43124

Mir

1 16609U 86017A 94204.92312268 .00002226 00000-0 37433-4 0 6898
2 16609 51.6480 2.6272 0002451 168.9704 191.1321 15.56655252481748

Keplerian bulletins are transmitted twice weekly from W1AW.

The next scheduled transmission of these data will be Tuesday,
August and 9, 1994, at 2230z on Baudot and AMTOR.

NNNN

/EX

Date: Tue, 9 Aug 1994 16:48:55 MDT

From: ihnp4.ucsd.edu!agate!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!
quartz.ucs.ualberta.ca!alberta!ve6mgs!usenet@network.ucsd.edu

Subject: ARLK032 Keplerian data

To: ham-space@ucsd.edu

SB KEP @ ARL \$ARLK032

ARLK032 Keplerian data

ZCZC SK99
QST de W1AW
Keplerian Bulletin 32 ARLK032
>From ARRL Headquarters
Newington, CT August 9, 1994
To all radio amateurs

SB KEP ARL ARLK032
ARLK032 Keplerian data

Thanks to NASA, AMSAT and N3FKV for the following Keplerian data.

Decode 2-line elsets with the following key:

1 AAAAAU 00 0 0 BBBB.BBBBBBBB .CCCCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF GGGGGG HHH.HHHH III.IIII JJ.JJJJJJJKKKKKZ
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

STS-68

1 99968U 94230.76050690 .00169786 00000-0 85389-4 0 10
2 99968 57.0052 28.8010 0009698 270.9951 89.0013 16.20039161 62

A0-10

1 14129U 83058B 94215.22805310 -.00000302 00000-0 10000-3 0 2952
2 14129 27.0009 314.8290 6026240 199.5326 120.6764 2.05881876 55785

RS-10/11

1 18129U 87054A 94217.28360494 .00000025 00000-0 11516-4 0 9337
2 18129 82.9261 292.5558 0010124 247.8358 112.1720 13.72339818356645

U0-11

1 14781U 84021B 94217.06002530 .00000040 00000-0 14575-4 0 7140
2 14781 97.7858 229.4962 0012777 110.4929 249.7644 14.69234472557488

RS-12/13

1 21089U 91007A 94217.39047551 .00000045 00000-0 32006-4 0 7143
2 21089 82.9224 334.9539 0029126 335.0529 24.9214 13.74044464175408

A0-13

1 19216U 88051B 94217.83984689 .00000387 00000-0 10000-4 0 9420
2 19216 57.7558 238.0897 7222395 347.4623 1.5383 2.09718451 15557

U0-14

1 20437U 90005B 94218.18895812 .00000006 00000-0 19249-4 0 161
2 20437 98.5892 302.2855 0011936 46.0694 314.1470 14.29851355236737

A0-16

1 20439U 90005D 94217.75283107 -.00000015 00000-0 11061-4 0 8144
2 20439 98.5976 303.1403 0012252 47.9314 312.2905 14.29905175236688

D0-17

1 20440U 90005E 94218.19210523 -.00000009 00000-0 13563-4 0 8150
2 20440 98.5990 303.9154 0012353 46.3033 313.9171 14.30044972236763

W0-18

1 20441U 90005F 94217.74852435 -.00000013 00000-0 12029-4 0 8178
2 20441 98.5971 303.4730 0012875 48.1720 312.0554 14.30019028236703

L0-19

1 20442U 90005G 94218.21310999 .000000015 00000-0 22584-4 0 8130
2 20442 98.5997 304.2035 0013244 45.1759 315.0483 14.30116058236782

F0-20

1 20480U 90013C 94217.87774967 -.000000003 00000-0 70241-4 0 7119
2 20480 99.0417 0.3238 0539937 226.8819 128.5911 12.83227042210500

A0-21

1 21087U 91006A 94219.64318363 .000000093 00000-0 82657-4 0 4970
2 21087 82.9451 104.6442 0034599 302.9191 56.8638 13.74543144176652

U0-22

1 21575U 91050B 94218.20224585 .000000014 00000-0 19326-4 0 5184
2 21575 98.4322 291.6827 0008025 134.4659 225.7181 14.36926162160263

K0-23

1 22077U 92052B 94217.92262333 -.000000037 00000-0 10000-3 0 4135
2 22077 66.0796 175.8457 0015291 273.5107 86.4157 12.86286834 93184

K0-25

1 22830U 93061H 94218.18413095 -.000000061 00000-0 -73176-5 0 3160
2 22830 98.5513 290.2453 0012359 33.3635 326.8318 14.28060392 44831

K0-25?

1 22828U 93061F 94218.18371130 .000000007 00000-0 20487-4 0 2893
2 22828 98.6463 293.5448 0011223 49.3829 310.8324 14.28062056 12917

I0-26

1 22826U 93061D 94218.74557302 -.000000007 00000-0 15122-4 0 3117
2 22826 98.6511 294.0850 0010155 63.7174 296.5049 14.27735455 44905

A0-27

1 22825U 93061C 94218.20757382 -.000000025 00000-0 75865-5 0 3118
2 22825 98.6513 293.5078 0009619 62.7450 297.4711 14.27630597 44829

P0-28

1 22829U 93061G 94218.19016610 .000000007 00000-0 20563-4 0 3047
2 22829 98.6466 293.5646 0011060 52.1754 308.0431 14.28035627 44837

Mir

1 16609U 86017A 94220.20165059 .00001969 00000-0 33780-4 0 7021
2 16609 51.6470 286.1786 0001163 194.3098 165.7861 15.56747870484123

Keplerian bulletins are transmitted twice weekly from W1AW.

The next scheduled transmission of these data will be Saturday,

August 13, 1994, at 2230z on Baudot and AMTOR.

NNNN

/EX

Date: Thu, 4 Aug 1994 22:34:00 MDT

From: ihnp4.ucsd.edu!nntp.ucsb.edu!library.ucla.edu!psgrain!nntp.cs.ubc.ca!

alberta!ve6mgs!usenet@network.ucsd.edu

Subject: ORBS\$217.WEATH.AMSAT

To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-217.W
Orbital Elements 217.WEATHER

HR AMSAT ORBITAL ELEMENTS FOR WEATHER SATELLITES
FROM WA5QGD FORT WORTH, TX August 5, 1994
BID: \$ORBS-217.W
TO ALL RADIO AMATEURS BT

Satellite: NOAA-9
Catalog number: 15427
Epoch time: 94215.73515055
Element set: 901
Inclination: 99.0450 deg
RA of node: 266.7740 deg
Eccentricity: 0.0015871
Arg of perigee: 84.8632 deg
Mean anomaly: 275.4348 deg
Mean motion: 14.13633304 rev/day
Decay rate: 1.17e-06 rev/day²
Epoch rev: 49697
Checksum: 317

Satellite: NOAA-10
Catalog number: 16969
Epoch time: 94215.76693453
Element set: 797
Inclination: 98.5081 deg
RA of node: 223.3165 deg
Eccentricity: 0.0012845
Arg of perigee: 186.3620 deg
Mean anomaly: 173.7398 deg
Mean motion: 14.24900734 rev/day
Decay rate: 3.6e-07 rev/day²
Epoch rev: 40927
Checksum: 332

Satellite: MET-2/17
Catalog number: 18820
Epoch time: 94215.49523818
Element set: 356
Inclination: 82.5407 deg
RA of node: 230.9503 deg
Eccentricity: 0.0018360
Arg of perigee: 50.0231 deg
Mean anomaly: 310.2527 deg
Mean motion: 13.84719219 rev/day
Decay rate: 2.8e-07 rev/day²
Epoch rev: 32890

Checksum: 289

Satellite: MET-3/2
Catalog number: 19336
Epoch time: 94213.59427610
Element set: 309
Inclination: 82.5400 deg
RA of node: 291.5503 deg
Eccentricity: 0.0017190
Arg of perigee: 144.8154 deg
Mean anomaly: 215.4104 deg
Mean motion: 13.16968250 rev/day
Decay rate: $5.1e-07$ rev/day²
Epoch rev: 28923
Checksum: 280

Satellite: NOAA-11
Catalog number: 19531
Epoch time: 94215.72629249
Element set: 719
Inclination: 99.1755 deg
RA of node: 205.8097 deg
Eccentricity: 0.0012225
Arg of perigee: 4.3041 deg
Mean anomaly: 355.8230 deg
Mean motion: 14.13007420 rev/day
Decay rate: $7.5e-07$ rev/day²
Epoch rev: 30185
Checksum: 279

Satellite: MET-2/18
Catalog number: 19851
Epoch time: 94213.75597542
Element set: 310
Inclination: 82.5213 deg
RA of node: 107.5997 deg
Eccentricity: 0.0015552
Arg of perigee: 95.1060 deg
Mean anomaly: 265.1868 deg
Mean motion: 13.84370156 rev/day
Decay rate: $7.8e-07$ rev/day²
Epoch rev: 27399
Checksum: 330

Satellite: MET-3/3
Catalog number: 20305
Epoch time: 94216.17052536
Element set: 106

Inclination: 82.5405 deg
RA of node: 236.7979 deg
Eccentricity: 0.0005331
Arg of perigee: 169.6805 deg
Mean anomaly: 190.4389 deg
Mean motion: 13.04422901 rev/day
Decay rate: 4.4e-07 rev/day^2
Epoch rev: 22915
Checksum: 286

Satellite: MET-2/19
Catalog number: 20670
Epoch time: 94213.41003535
Element set: 813
Inclination: 82.5455 deg
RA of node: 172.5483 deg
Eccentricity: 0.0017266
Arg of perigee: 24.6776 deg
Mean anomaly: 335.5206 deg
Mean motion: 13.84189091 rev/day
Decay rate: -2.9e-07 rev/day^2
Epoch rev: 20687
Checksum: 306

Satellite: FY-1/2
Catalog number: 20788
Epoch time: 94215.88224815
Element set: 31
Inclination: 98.8366 deg
RA of node: 234.5011 deg
Eccentricity: 0.0014887
Arg of perigee: 239.5385 deg
Mean anomaly: 120.4308 deg
Mean motion: 14.01350503 rev/day
Decay rate: -1.99e-06 rev/day^2
Epoch rev: 20038
Checksum: 293

Satellite: MET-2/20
Catalog number: 20826
Epoch time: 94213.65208044
Element set: 821
Inclination: 82.5269 deg
RA of node: 109.8175 deg
Eccentricity: 0.0012367
Arg of perigee: 286.6921 deg
Mean anomaly: 73.2884 deg
Mean motion: 13.83587320 rev/day

Decay rate: 9.4e-07 rev/day²
Epoch rev: 19404
Checksum: 311

Satellite: MET-3/4
Catalog number: 21232
Epoch time: 94213.31479971
Element set: 720
Inclination: 82.5437 deg
RA of node: 137.6981 deg
Eccentricity: 0.0014536
Arg of perigee: 72.5269 deg
Mean anomaly: 287.7438 deg
Mean motion: 13.16463399 rev/day
Decay rate: 5.1e-07 rev/day²
Epoch rev: 15729
Checksum: 325

Satellite: NOAA-12
Catalog number: 21263
Epoch time: 94215.74541817
Element set: 123
Inclination: 98.6148 deg
RA of node: 242.4707 deg
Eccentricity: 0.0013903
Arg of perigee: 97.3891 deg
Mean anomaly: 262.8867 deg
Mean motion: 14.22434851 rev/day
Decay rate: 1.14e-06 rev/day²
Epoch rev: 16726
Checksum: 307

Satellite: MET-3/5
Catalog number: 21655
Epoch time: 94216.15247496
Element set: 729
Inclination: 82.5535 deg
RA of node: 82.8772 deg
Eccentricity: 0.0014667
Arg of perigee: 73.7291 deg
Mean anomaly: 286.5437 deg
Mean motion: 13.16832975 rev/day
Decay rate: 5.1e-07 rev/day²
Epoch rev: 14277
Checksum: 338

Satellite: MET-2/21
Catalog number: 22782

Epoch time: 94213.36733443
Element set: 322
Inclination: 82.5485 deg
RA of node: 170.6331 deg
Eccentricity: 0.0023958
Arg of perigee: 97.1572 deg
Mean anomaly: 263.2315 deg
Mean motion: 13.83011259 rev/day
Decay rate: 4.2e-07 rev/day^2
Epoch rev: 4633
Checksum: 284

/EX

Date: 7 Aug 1994 10:09:07 -0400
From: ihnp4.ucsd.edu!nntp.ucsb.edu!library.ucla.edu!agate!howland.reston.ans.net!
swiss.ans.net!newstf01.cr1.aol.com!search01.news.aol.com!not-for-
mail@network.ucsd.edu
Subject: STS-65 Commemorative TLI Burn
To: ham-space@ucsd.edu

reposted from AOL:

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Date: Thu, Aug 4, 1994 7:43 PM EDT
From: Adamod
Subj: STS-65 Commemorative TLI Burn
File: TLI.sit (58540 bytes)

MacSPOC Users-

During STS-65, you'll recall MacMission Control supported targeting of a commemorative TransLunar Injection (TLI) burn. Time of IGnition (TIG) for this burn was 25 years to the minute after a similar TLI was performed by Apollo-11 to break free of low earth orbit. The commemorative TLI was targeted to reach a point 100 miles above the moon's farside 25 years to the minute after Apollo-11's Lunar Orbit Insertion (LOI) burn TIG.

With targets from MacMission Control, Flight Dynamics Officers (FDOs) in the real Mission Control filled out a Pre-Advisory Data (PAD) for the commemorative TLI burn. This PAD, together with plots of STS-65's post-TLI trajectory relative to the earth and moon, are enclosed as 3 TeachText documents for your viewing pleasure.

An image of the commemorative TLI PAD was uplinked as a FAX to the STS-65 crew around 8:30 AM CDT July 16, 25 years after Apollo-11 was launched. Upon receiving the PAD, STS-65 Commander Bob Cabana remarked, "Don't we

wish!" Powered Explicit Guidance mode 7 (PEG 7) targets computed by MacMission Control appear on the PAD as an in-track speed increase of 9586.3 fps, a northward cross-track velocity change of 3073.7 fps, and a radial upward velocity change of 5944.0 fps. Using both Orbital Maneuvering System (OMS) engines for a total thrust of 12000 lbs, Columbia would have required a TLI burn duration (TGO) of 2 hrs 03 min 24 sec to build up these velocity changes. Actual OMS fuel available to Columbia at TLI TIG would have supported less than 5 min of 2-engine burn time, and most of this was allocated to STS-65 deorbit.

It's worth noting Apollo-11 weighed nearly 200000 lbs at TLI TIG, only about 45000 lbs less than Columbia's WT on the commemorative PAD. Unlike Columbia, however, about 75% of Apollo-11's weight was propellant to feed the Saturn IV-B's single J-2 engine during TLI. Because the J-2 developed about 200000 lbs of thrust, Apollo-11's TLI required less than 6 min to perform.

The 2 post-TLI plots are in the ecliptic plane. This is coincident with earth's orbit around the sun. The moon's orbit about earth is less than 5 deg from the ecliptic. The Vernal Equinox indicated on these plots is the Sun's apparent position as viewed from earth when Spring begins in March. The Sun's position in mid-July is also indicated on the plots.

Does anyone have a guess as to when the next (manned) TLI burn will be performed for real?

-Dan Adamo

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I'll be glad to send the Mac PICT file in a BinHex'd StuffIt to anyone who requests it. PLEASE send your request to my "other" account...

p00489@psilink.com

NOT here to my AOL account... the file is to big for that mailer!

73 for now.... c u on the shortwaves

Terry Stader - KA8SCP

America Online Ham Radio Club Host

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Date: 6 Aug 1994 16:44:00 GMT

From: elroy.jpl.nasa.gov!usc!nic-nac.CSU.net!news.Cerritos.edu!news.Arizona.EDU!

sedslssa@ames.arpa
Subject: Student Space Action Announces Home Page
To: ham-space@ucsd.edu

STUDENT SPACE ACTION ANNOUNCES HOME PAGE!!

Student Space Action would like to announce the availability of their home page. First of all, Student Space Action is a growing national organization of students who's mission it is to educate people on the values and benefits space exploration has on our everyday lives and deliver a message to Congress on a regular basis that illustrates the strong student support for space exploration.

SSA's home page is where you can learn about the organization's projects, including their Online Space Station Petition, as well as other projects at universities around the country. Simply point your World Wide Web browser at the following URL:

<http://sedslpl.arizona.edu/~ssa/ssahomepage.html>

Thank you for your support.

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Student Space Action

"Don't Take Away Our Frontier!"

For general responses: ssa@sedslpl.arizona.edu

For technical or policy inquiries: chrisl@bozo.lpl.arizona.edu
or gamageb@db.erau.edu

We will keep reaching for the stars....

Visit our homepage!

[SSA Homepage](http://sedslpl.arizona.edu/~ssa/ssahome.html)

End of Ham-Space Digest V94 #220
